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Potato Wart—A Dangerous New Disease

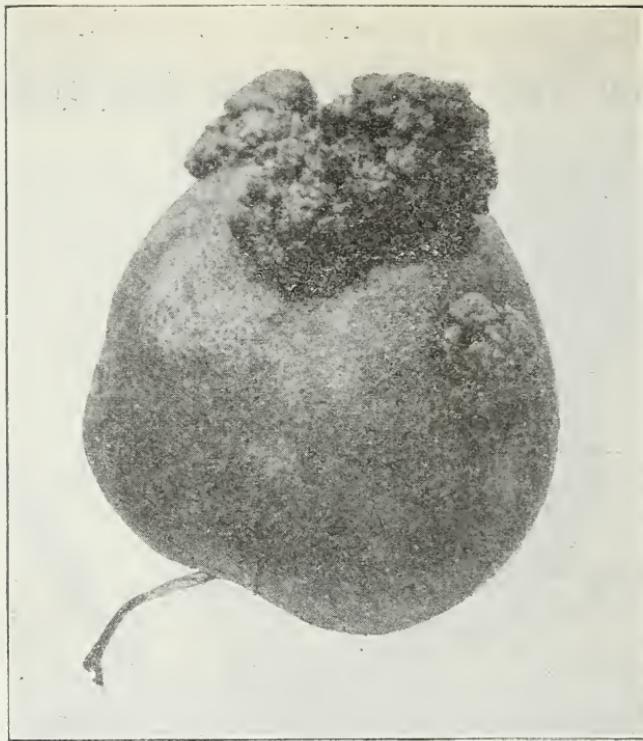


Underground parts of a potato plant badly affected with wart

If this disease occurs in your section, report it at once to the
County Agent, the State Agricultural College, or the
United States Department of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
DEPARTMENT CIRCULAR 32

Contribution from the Bureau of Plant Industry
(Office of Plant-Disease Survey)
WM. A. TAYLOR, Chief



A potato showing several warts.



A potato split lengthwise, showing that the wart is an outgrowth from the tuber.

POTATO WART—A DANGEROUS NEW DISEASE.

THE potato crop of the United States, aggregating 400,106,000 bushels in 1918, and worth \$478,136,000, is endangered by a serious disease, the potato wart, which was discovered in Pennsylvania in September, 1918, and may occur elsewhere in the United States. The wart is believed to have come to the United States on potatoes imported from Europe, where the disease has been gradually increasing during recent years. In the hope of keeping the wart out of America, the U. S. Department of Agriculture in 1912 placed an embargo on potatoes coming from countries where the disease was known to exist. Before this embargo took effect, however, several million bushels of the crop of 1911 had been shipped to this country from Europe, and other smaller importations took place in previous years. These potatoes were widely distributed over the eastern half of the United States and may have introduced this disease into other States besides Pennsylvania.

The infested area in Pennsylvania is quarantined, and every precaution is being taken to prevent the spread of the disease. Investigations on the nature of the wart and on its eradication are under way, and both domestic and foreign varieties of potatoes are being tested for resistance to the disease.

POTATO INDUSTRY MENACED.

Wart is usually considered one of the most serious of potato diseases. It has caused great damage abroad during recent years, especially in England and Ireland, whence many of our imported potatoes have come. The parasite which causes the disease lives in the soil for many years, the severity of the disease apparently depending on the degree of infestation of the soil. Hence, in fields where potatoes follow potatoes in successive years or at frequent intervals the disease becomes steadily worse until it is impossible to raise sound tubers. In some gardens in Pennsylvania in the fall of 1918 the disease was so severe that the crop was practically a total loss.

SIGNS OF THE DISEASE.

The first evidences of wart are small spongy outgrowths on the potato, especially at the eyes. These increase in size and may grow as large as the potato itself. Not infrequently a number of warts may arise at different places on the same tuber, causing the whole potato to become a spongy, warty mass. In the early stages the warts are light brown, the color becoming darker and finally black

with age. Badly diseased potatoes decay in the field and those less seriously attacked are extremely susceptible to rot in storage. Wart does not kill the potato plant and seldom interferes seriously with the growth of the potato vines; therefore the detection of the disease is difficult or impossible before digging time. This disease also attacks the common nightshade and the bittersweet.

WHAT CAUSES WART?

Wart is caused by a parasitic fungus (*Chrysophlyctis endobiotica* Schilb.) which penetrates the outer layers of the potato and stimulates them to abnormal development, thus causing the characteristic warty outgrowths. Millions of reproductive bodies, called sporangia, are formed in the wart tissue and are released into the soil when the wart decays. Some germinate as soon as mature, releasing litters of spores which may reinfect the potatoes and cause new warts. Others are resting sporangia, which may lie dormant in the soil for many years until by cultivation or other means they are brought into suitable conditions for germination.

HOW THE FUNGUS MAY BE SPREAD.

The wart parasite may be carried into clean soil (1) by drainage water from infested fields, (2) by the distribution of infested soil (as on agricultural implements or on the feet of men or animals), (3) by the use of manure from animals to which diseased tubers have been fed, (4) by garbage into which peelings from diseased tubers have been thrown, and especially (5) by the planting of diseased tubers or of tubers which have been grown in infested soil and carry the infection on their surfaces.

IS WART PRESENT ELSEWHERE IN THE UNITED STATES?

The wide distribution of the potatoes imported from abroad in 1912 and in earlier years makes it possible that wart may have established itself in more than one locality in the United States. Hence, potato growers, potato dealers, and potato users should be on the lookout for it in all parts of the country. Wart is easier to prevent than to control. It is highly important that all localities where it occurs be discovered as soon as possible, in order that proper measures may be taken to prevent its further spread and to eradicate it where present.

Keep watch at digging time for potatoes with warty outgrowths which are light brown when young, black and decayed when old. **Report promptly all suspicious cases and send specimens** to your County Agent, or to the Plant Pathologist at your Agricultural Experiment Station or State College, or to the Plant-Disease Survey, U. S. Department of Agriculture, Washington, D. C.

